

Remarks

Reconsideration and withdrawal of the previously standing rejection as well as favorable action therefor of the present claimed subject matter is respectfully requested.

With the above amendments, claims 1 and 14 through 31 are now pending of which claim 1 was amended, claims 14-22 stand withdrawn and claims 23-32 were newly presented.

The amendments made to the claims more particularly highlight the characterizing aspects of the invention including details associated with the scanning signal line of the display device. These revisions were also implemented in a manner which further highlights the particularly defining aspects of applicants invention even over the combined teachings of the cited art documents, as applied in the outstanding rejection. It should also be noted that original claims 2-13 are being re-presented as newly submitted claims 23-32, inclusive. Newly presented claim 23 (dependent on claim 1) limits the "second metal film" to an aluminum film, claim 24 (dependent on claim 1) further characterizes the image signal line as being formed over the insulating film and claim 25 (dependent on claim 24) is similar to claim 23. That is, newly presented claims 23 -25 replace the now canceled claims 2-4, respectively.

Newly presented claims 26-32 also cover a display device scheme featuring a Thin Film Transistor (TFT), a scanning signal line, an image signal line as well as a pixel electrode and, also, call for the scanning signal line to include a first metal film and a second metal film that is formed over the first metal film, similarly as that called for in the currently amended claim 1. The second or upper metal film of the scanning signal line in some of the claims is limited to an aluminum film, consistent with that of claims 1+. It is submitted, the newly presented claims 25-32 are,

likewise, directed to a display scheme similarly as that called for in claim 1 and also in the dependent claims 23-25 thereof. Therefore, it is respectfully requested that they also be considered to cover an invention according to the previously elected Group I. Moreover, it is respectfully requested that at least claims 20-22 of those previously withdrawn also be included in this grouping for purposes of examination, noting that they are directed to a display scheme featuring an arrangement of a Thin Film Transistor, a scanning signal line, an image signal line and a pixel electrode as well as calling for various structural particularities of the scanning signal line, as called for in claims 1+ and 26-32, although somewhat differently presented therefrom. Discussion will now turn to the sole outstanding rejection.

According to the Office Action, claims 1-4 (relating to the elected Group I) were rejected under 35 USC §103(a) as unpatentable over the combination of Okubo (JP 60-233621) in view of Yokono et al (USP 4,714,636). It will be shown, hereinbelow, the invention now called for in amended claim 1 and the dependent claims 23-25 thereof and that called for in the newly presented claims 26-32 could not have been rendered obvious over the combined teachings of these references, as alleged in the rejection. Therefore, insofar as presently applicable, this rejection is traversed and reconsideration and withdrawal of the same is respectfully requested.

As mentioned above, the invention according to claims 1 and 23-25, claims 26-27, claims 28-30 and claims 31-32 not only set forth the construction of a TFT but, also, particularly define the structural aspects associated with the scanning signal line to which the gate electrode of the TFT is connected. The construction of the scanning line is defined in a manner consistent with the various originally disclosed example embodiments of the present application such as shown in Figs. 1, 8, 10 and 15 of the drawings, although not limited thereto. For example, as can

be seen from Fig. 4 of the drawings, which relates to the manufacture of an embodiment such as that illustrated in Figs. 1 and 2, the scanning signal line GL contains a first metal film (layer) g1 (e.g., made of chromium) and a second metal film (layer) g2 (e.g., made of aluminum) formed over the first metal film. As can be seen from this illustration, also, as well as with regard to other ones of the disclosed example embodiments, the scanning signal line is such that its uppermost or top surface thereof (see the upper surface of the second metal film g2 of the scanning signal line GL in Fig. 2) has a width that is smaller than the width of the bottom surface of the first metal film g1 of the scanning signal line GL. This is the case with regard to each of the disclosed example embodiments.

Also according to each of the independent claims 1, 26, 28 and 31, the invention further calls for the scanning signal line to be constructed such that the top surface to bottom surface width relationship thereof occurs at least in a crossover portion of the scanning signal line [GL] and the image signal line [DL]. From the example embodiment illustrations, it is noted that the multi-film layered scanning signal line GL is provided in at least a plane view portion where the scanning line GL and the image signal line DL crossover. Namely, the upper left portion of the example embodiments show a plane view intersection (crossover) of the scanning signal line GL and the image signal line DL. These example illustrations also show that such a multi-film layered scanning signal line construction can be extended over the length of the scanning signal line. This arrangement of providing a relatively narrower top surface than that of the bottom surface of the scanning signal line, for example, leads to a more gradual stepped layer associated with the formation of the insulating film thereover, especially at the location of the crossover region between that of the scanning signal line GL and the image signal line DL. Such a gradual rise along the sidewalls of the composite film layer associated with the scanning

signal line GL is effected at least at the location of the crossover portion of the scanning signal line GL and the image signal line DL. It is submitted, such a display device scheme as that now called for, clearly, could not have been realized even over the combined teachings of Okubo and Yokono et al.

Okubo was cited especially for its showings in Fig. 5(a) - Fig. 5(b) and Fig. 6 thereof. The sectional views shown in Figs. 5(a) and 5(b) are directed to the views defined by section line A-A and section line B-B in Fig. 4 of Okubo. According to Figs. 4 and 5 in Okubo, it is noted that the scanning signal line is constituted by a single conductive film 22aa. With regard to the sectional views shown in Figs. 5(a) and 5(b), associated with the TFT regions of the plane view configuration shown in Fig. 4 thereof, it is noted that the metal layer 122 is provided over the gate wiring part 22aa only at the location of the TFT region, where there is no crossing over of the image signal line and scanning signal line. Since the gate electrode 22aa in Figs. 4 and 5 of Okubo is made of transparent material, metal layer 122 is laid thereover at the region of the TFT which effectively acts as a light shield. Likewise, in Fig. 6 of Okubo, reference numeral 22aa represents a transparent electrode of a gate wiring part while numeral 122 represents a gate part disposed directly below the TFT semiconductor region and is capable of light shielding. However, the scanning signal line, according to Okubo, is effected only by the conductor 22aa.

According to the present invention, the scanning signal line includes a first metal film and a second metal film formed over the first metal film in which, also, the second metal film has a top surface with a width that is smaller than the width of the bottom surface of the first (lower) metal film at least in a crossover portion of the scanning signal line and the image signal line. The crossover portion in the claims, which was earlier discussed in these remarks, refers to the plane view area at the location of the intersection of the scanning signal line GL and the image signal line

DL. Such a scheme was clearly not taught by Okubo. Such featured aspects directed to the construction of the scanning signal line are contained in each of independent claims 1, 26, 28 and 31, although with some variations in the related descriptive language therein.

Yokono et al also disclosed an LCD display scheme featuring Thin Film Transistors (TFTs). Yokono et al was particularly cited for its teaching of using a number of different types of conductive material for implementing the gate, source and drain electrodes. It is submitted, Yokono et al is similarly deficient at least in terms of the characterizing aspects of the scanning signal line according to the present invention. It is submitted, also, there does not appear to be any discussion or inference in Yokono et al regarding the construction of the scanning signal line. It can, therefore, be assumed that the single conductive layer for forming the gate electrode 1 in Yokono et al is also used to implement the scanning signal line. Therefore, since neither Okubo or Yokono et al taught a display device scheme as that presently called for in claims 1+, 26+, 28+ and 31+, nor showed any reason why such a construction would be desirable, the invention could not have been realized even over their combined teachings.

Therefore, in view of the amendments presented hereinabove together with these accompanying remarks, reconsideration/withdrawal of the outstanding rejection as well as favorable action of claims 1 and 23-32 is respectfully requested. It is also respectfully requested that examination be made at least also with regard to previously withdrawn claims 20-22 for the reasons given earlier in these remarks.

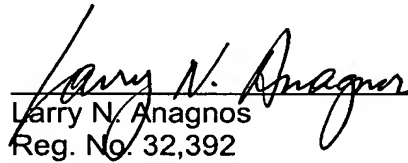
If the Examiner believes that there are any other points which may be clarified or otherwise disposed of, either by telephone discussion or by a personal

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interview, the Examiner is invited to contact the undersigned representative at the number indicated below.

To the extent necessary, applicants petition for an extension of time under 37 CFR §1.136. Please charge any shortage in the fees due in connection with the filing of this paper, to the Deposit Account of Antonelli, Terry, Stout & Kraus, LLP, Dep. Acct. No. 01-2135 (501.26071CC8), and please credit any excess fees to such deposit account.

Respectfully submitted,
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